



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,427	10/05/2006	Thomas J. Webster	3220-100466	3926
23644	7590	11/17/2010		
BARNES & THORNBURG LLP			EXAMINER	
P.O. Box 2786			SNOW, BRUCE EDWARD	
CHICAGO, IL 60690-2786				
			ART UNIT	PAPER NUMBER
			3738	
			NOTIFICATION DATE	DELIVERY MODE
			11/17/2010	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Patent-ch@btlaw.com

### Office Action Summary

**Application No.**

10/550,427

**Applicant(s)**

WEBSTER ET AL.

**Examiner**

Bruce E. Snow

**Art Unit**

3738

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 September 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14, 15, 22, 23 and 25-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14, 15, 22, 23 and 26-31 is/are rejected.
- 7) ☒ Claim(s) 25 and 32-35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed 9/8/10 have been fully considered. Regarding the rejections of claims 14-15 and 22 under 35 U.S.C. 102(e) as being anticipated by Smith et al (2004/0131753), Smith fails to teach carbon nanofibers. Therefore, applicant's amendments to these claims overcame the previous rejection. Regarding claim 27, the examiner disagrees with applicant's position. The claim limitation "neural implantable device" is a broad limitation. Smith et al teaches the medical device maybe implanted and includes artificial joints etc. which inherently contacts neuronal tissue. Neuronal regeneration to regain feeling or movement is a desired natural occurrence in such a surgery.

Regarding the rejection under 35 U.S.C. 102(e) as being anticipated by Glatkowski et al (2004/0071949). The claim limitation "neural implantable device" is a broad limitation. Glatkowski et al teach the medical device maybe pacemakers or implants which inherently contacts neuronal tissue. Neuronal regeneration to regain feeling or movement is a desired natural occurrence in such a surgery.

Note a new rejection relying on Mattson et al (6,670,179) has been made to address the claim amendments.

### ***Allowable Subject Matter***

Claims 25, 32-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Information Disclosure Statement***

2. Applicant should note that the large number of references in the IDS dated 2/16/10 have been considered by the examiner in the same manner as other documents in Office search files are considered by the examiner while conducting a search of the prior art in a proper field of search. **See MPEP 609.05(b).** Applicant is requested to point out any particular references in the IDS which they believe may be of particular relevance to the instant claimed invention in response to this office action. There is no requirement that applicants explain the materiality of English language references, however the cloaking of a clearly relevant reference in a long list of references may not comply with applicants' duty to disclose; see Penn Yan Boats, Inc. v. Sea Lark Boats, Inc., 359 F. Supp. 948, aff'd 479 F. 2d. 1338.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 27-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Smith et al (2004/0131753).

Smith et al teaches using an implant that minimizes scar formation comprising coating the implantable device with a nanomaterial. See at least paragraph 0015 stating, "[i]t is still another object of the present invention to provide at least one nanofiber, as above, which is capable of being coated or otherwise applied to medical devices." Regarding the medical device capable of being termed an implant, see at least paragraph 0022 and 0023. An implant as taught implanted in the body is inherently secured in the neural tissue. Note the teaching of a "nanofiber coating, because of the small size and large surface area per unit mass of the nanofibers, provides a much larger surface area while minimizing changes in other properties. Such a coating can be utilized on any implant devices, which would be otherwise likely to cause an inflammatory response, to minimize that response." It is the examiner's position that reducing the inflammatory response minimizes scar formation.

The claim limitation "neural implantable device" is a board limitation. Smith et al teaches the medical device may be implanted and includes artificial joints etc. which inherently contacts neuronal tissue. Neuronal regeneration to regain feeling or movement is desired in such a surgery.

Claims 14-15, 22-23, 26-31 are rejected under 35 U.S.C. 102(e, b) as being anticipated by Glatkowski et al (2004/0071949).

Glatkowski et al teaches coating an implant with a nanomaterial comprising nanotubes and a polymer. The implant would be inherently implanted and the coating would be fully capable of minimizing scar formation. See at least claims 21 and 39:

*21. The coated substrate of claim 20, wherein the substrate is part of a device component selected from the group consisting of keypads, catheters, integrated circuits, printed wire boards, printed circuit boards, hybrids, transducers, sensors, cores, accelerometers, catheters, coils, fiber optic components, heat exchangers, pacemakers, implants, flow meters, magnets, photoelectric cells, electrosurgical instruments, and plastic encapsulated microcircuits.*

*39. The method of claim 33, wherein the carbon nanotube-containing layer further comprises a polymeric material, wherein the polymeric material comprises a material selected from the group consisting of polyethylene, polypropylene, polyvinyl chloride, styrenic, polyurethane, polyimide, polycarbonate, polyethylene terephthalate, cellulose, gelatin, chitin, polypeptides, polysaccharides, polynucleotides and mixtures thereof.*

The claim limitation "neural implantable device" is a broad limitation. Glatkowski et al teach the device may include pacemakers or implants which inherently contacts neuronal tissue. Neuronal regeneration to regain feeling or movement is a desired natural occurrence after such types of surgery.

Regarding the dimensional limitations, see at least paragraphs 0037 and 0038. Regarding at least claim 27, note the aspect ratio.

Claim 26, inherently some of the nanotubes are "aligned".

Regarding claim 33, see paragraph 0087.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14-15, 27-28 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mattson et al (6,670,179).

Mattson et al teaches the use of a neural implant (1:5-12) comprising nanomaterial comprising nanotubes. The implant is fully capable of minimizing scar formation. Mattson et al teaches:

*"A cell and substrate system and nerve regeneration implant are disclosed including a carbon nanotube and a neuron growing on the carbon nanotube. Both unfunctionalized carbon nanotubes and carbon nanotubes functionalized with a*

*neuronal growth promoting agent may be utilized in the invention. A method is also disclosed for promoting neuronal growth."*

*"In accordance with an additional aspect of the present invention, the carbon nanotube 10 may be functionalized with a neuronal growth promoting agent. The neuronal growth promoting agent may be selected from a group consisting of 4-hydroxynonenal, acetylcholine, dopamine, GABA (g-aminobutyric acid), glutamate, serotonin, somatostatin, nitrins, semaphorins, roundabout, calcium (Ca.sup.2+) mixtures thereof."*

Referring to at least 3:11 et seq., Mattson et al teaches coating a glass coverslip 14 (interpreted as a neural implantable device) with a thin layer of polyethyleneimine (polymer matrix) and coating it with nanotubes dispersed in a solvent. After the solvent is evaporated, the polyethyleneimine attaches the nanotubes to the coverslip forming a composite nanomaterial. The implant is then seeded with neural tissue which meets the limitation of securing the implantable device in neural tissue. Additionally, the device is implanted in the body.

In the alternative, under 35 U.S.C. 103(a) as obvious over Mattson et al (6,670,179), if a glass coverslip is not considered a neural implantable device, it would have been obvious to one having ordinary skill in the art to have tried and applied the composite nanomaterial directly to a neural implant with predictable results.

Claim 26, inherently some of the nanotubes are "aligned".

### **Conclusion**



Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce E. Snow whose telephone number is (571) 272-4759. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Corrine McDermott can be reached on (571) 272-4754. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bruce E Snow/  
Primary Examiner, Art Unit 3738